

SWOT analyses and SWOT strategy formulation for forest owner cooperations in Austria

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Abstract Forest owner cooperations (FOC) are bundling wood supply from small-scale forests and some also offer additional services, such as wood harvesting or planting. FOCs are growing throughout Europe in terms of the managed timber volume. The increasing timber demand of forest-based industries as well as the new, rapidly growing demand for energy plants could lead to an under-supply in the following years in Europe. Because of high harvesting arrears in small-scale forests, FOCs are seen as an opportunity to overcome this foreseen timber shortage. The paper maps out timber mobilisation strategies using the SWOT (Strengths, Weaknesses, Opportunities and Threats) approach.

Keywords Forest owner cooperation · SWOT · Strategy · Small-scale forest · Timber mobilization

Introduction

Forest owner cooperations (FOC) are bundling wood supply from small-scale forests and some also offer additional services, such as wood harvesting or planting. FOCs are growing throughout Europe in terms of managed timber volume. New services, like managing the forests of absentee owners, and new products such as to supply energy plants with forest fuel are being

introduced by innovative FOCs. In Europe increasing timber demand of forest-based industries as well as a new, rapidly growing demand for energy plants could lead to an under-supply in future years (DeGalambert 2003). Due to high harvesting surpluses in small-scale forests, FOCs are seen as an opportunity to overcome this foreseen timber shortage. Although the above-mentioned innovations occur, FOCs in Austria seem to be restricted to a relatively small amount of growth in comparison to the unused harvesting potentials in small-scale forests. Austrian FOCs seem to remain at a particular level of development and actual implemented strategies do not exploit the huge timber potential. This situation is similar to other countries, as Baumgartner et al. (2003, p. 59) states for the use and effectiveness of Washington state's extension forest stewardship program that "...there may be more effective ways to utilise existing resources".

Cooperation among forest landowners can help strengthen their economic situation through "...economies of scale associated with pooling resources in marketing products and reducing harvest or management costs..." (Jacobson 2002, p. 81). Forest owners are quite interested in programs offering coordinated management. But even if substantial incentives are offered forest owners' willingness to actually join cooperatives is small (Kłosowski et al. 2001). Main reasons for taking part in such programs are e.g., the owner's insufficient forest expertise as well as the lack of time to undertake the forestry work (Ni Dubhain and Kavanagh 2003). Membership in a landowner organisation is associated with more engagement in forest management activities (Rickenbach et al. 2006) and managers of FOCs realise that they attract mainly small-scale forest owners who already actively manage their forest.

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SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis is an instrument of strategic planning which scans internal strengths and weaknesses of organisations and illuminates the opportunities and threats of the environment. Knowing all these points of a company or of a supply chain is a good basis for strategy formulation. Furthermore SWOT provides a framework for deriving strategies based on promising combinations of found strengths, weaknesses, opportunities or threats.

Oswald et al. (2004) investigated the economic situation of primarily small forest enterprises in a Swiss forest district applying the SWOT analysis and derived strategies in the form of three different models for sales organisation. Their favourite model (“merger model”) is an enterprise that centrally markets and sells timber and also includes timber harvesting. The enterprises should at least cover the area of a forest district or have an annual cut of about 50,000 m³. This model describes quite well the actual status of Austria’s biggest FOCs, such as FOC Mur-Mürztal or FOC Hartberg-Fürstentfeld; both covering two districts and supplying an annual cut of about 50,000 to 80,000 m³.

But how can the development of FOCs be accelerated and how can the timber supply chain be organised in a better way? This paper aims at working out some strategy options showing practitioners promising future development directions for FOCs. At first, an overview on applied or formulated strategies of FOCs is provided, describing an actual range of possibilities and reflecting the perceptions of the managers of various organisations. Then, a well-established method for assisting the formulation of the strategy, the SWOT analysis is used to draw out further strategies for FOCs.

Implemented strategies for the FOCs

Strategies of Södra and Kempten as examples of successful FOCs

Södra (Sweden) is an FOC with about 34.000 members, founded in the nineteen thirties to ensure revenues from forestry. Södra tries to market members’ timber for optimal prices and is also lobbying members’ economic interests. Södra is split between different divisions: Södra Timber AB (6 saw mills, 2.3 M m³ annual cut as well as logging, consulting services, education and timber trading), Södra Cell AB (5 pulp mills, the world’s largest pulp producer), Södra Skogsenergi (bioenergy, pellets) and Gapro (interior wood products supplied to the building trade and DIY chain

stores). Södra offers forest owners the opportunity to share in a modern forest-based industry and to earn a dividend. Each FOC member has the voting right independent from the forest’s size giving a possibility of codetermination. FOC members of a forest district elect representatives for the stockholder’s meeting, Södra’s highest decision-making body that elects the management board (Södra 2005).

FOC Kempten (Germany) was founded in 1969 to bolster the profitability of small-scale forestry. Since 1998, Kempten provides all kinds of forest measures executed by entrepreneurs under the supervision of the FOC’s forester. A subsidiary company of FOC Kempten produces various kinds of forest fuels, like chips, pellets or split logs. Forty percent of FOC’s administration costs are paid by the Federal State of Bavaria (Einsiedler 2000; Romer et al. 2000; Anonymus 2001).

Strategies implemented by Södra as well as those implemented by Kempten are analysed. Södra gives an example of a FOC that has been able to vertically integrate the wood supply chain whereas Kempten is a FOC with a long history of varied services. Kempten offers the whole range of forest management measures e.g., from planning activities to contracting entrepreneurs and to supervising to absentee forest owners or owners who do not wish to work in their forest. Forest owners can choose either a full package, which is comprehensive forest management or, conversely, to only contract special parts, such as harvesting and timber sales. After FOC Kempten installed a full-time manager in 1996, it has been able to create and realize new ideas beyond the traditional FOC services and products (Table 1).

Södra’s timber procurement strategy consists of two options, depending upon the forest’s capacity and member’s will. If a member does not wish to harvest timber on his/her own, the timber is purchased as stumpage and Södra uses entrepreneurs for logging and transporting. Timber purchased as stumpage is logged and transported within a strict time frame, enabling Södra to exactly plan and steer the wood supply to mills. If FOC members choose to log it on his/her own, timber is purchased on landings at forest roads. The prices paid vary with the volumes and high handling costs of small volumes lead to lower prices. Södra owns only a few harvesters, forwarders and trucks to maintain control of revenues and expenses and to provide a good knowledge of entrepreneurs’ possible profit as negotiation basis.

So it can be seen that both FOCs try to professionalize logging operations by using entrepreneurs. Forest entrepreneurs can ensure a better quality of logs and can harvest even during agricultural work peaks.

Table 1 FOC Kempten's management phases and innovations

Kind of FOC management	Innovations
Additional business for a state forester (1969–1990)	Machine presentations (since 1972) Educational and informational presentations (since 1975) Timber sale (since 1980) Plant purchase (since 1983)
Part-time FOC manager (1991–1995)	Hardwood auctions (since 1992) Seedling harvest (since 1992)
Full-time manager (since 1996)	Forest fuel sale centre (since 1997) Full forest management service for e.g., absentee owners (since 1998) Co-foundation of energy and environmental centre Allgäu (1998)

Furthermore, professional forest workers have fewer accidents than small-scale forest owners who seldom harvest timber.

Strategies of the Austrian FOCs' umbrella organisation

Globalisation and international concentration processes have markedly changed structure of forest-based industries in Austria. Today, for example, fewer, but larger saw-mills produce much more sawn wood than ever before, but the forest structure did not experience a similar dramatic development. Forestry recognised the need to evolve new structures fitting Austria's globally acting forest-based industries. FOCs have quickly been perceived as capable of concentrating the small-scale forest's timber supply to gain more market power and relevance. Also, within some years the forest enterprises¹ discovered the advantages of FOC and joined or founded their own FOCs with other enterprises.

In 1999 Austrian forest farmer cooperation (Bundeswaldverband) and the agricultural chamber of Austria mapped out the strategic positions of FOCs in Austria (Anonymus 1999). Various strategies were listed to answer the challenge of concentration in forest-based industries and to ensure forest owners' revenue. The most important are the following: (1) Horizontal cooperation between small-scale forests and forest enterprises to ensure a good utilisation rate of expensive logging machinery (harvester, forwarder, cable crane) and to increase the service level and supply to industry. (2) Vertical cooperation with forest-based industries as a measure to implement new technologies and to gain cost cuts along the supply chain. FOCs see their part in the cooperation mainly in supplying timber according to industry's wish. Vertical

integration is limited here to long-term contracts with wood demanding industries and entrepreneurs. (3) Offering additional services, such as the coordination of fully-mechanised wood harvesting systems and silvicultural measures in conjunction with the basic joint timber-selling service. Also, new services, such as total forest management of forests for owners living long distances from their forests should be developed. (4) Professional full-time managers should lead FOCs in continuous growth in terms of the services offered and volumes marketed.

The strategy paper from 2004 (Waldverband 2004) includes nearly the same strategies, but with slightly more concrete measures regarding how to implement these strategies as well as new markets for the supply of large bioenergy plants with wooden biomass. Throughout Austria the formulated strategies are more of a vision showing the desired direction of future development rather than planned measures and decisions over financial and personal resources to reach long-term objectives. Also, the fact that the new strategy paper must repeat all of the old strategies demonstrates that the implementation of the strategy paper from 1999 has not yet been undertaken successfully.

SWOT analyses and SWOT strategy formulation

Before developing new strategies, the situation of the Austrian FOC is analysed using a commonly used strategic analysis method (SWOT, Strengths, Weaknesses, Opportunities and Threats) and upon the findings of these analyses a creative method is applied to formulate the SWOT strategies.

SWOT analysis is an instrument of strategic management of companies or products. Internal strengths and weaknesses as well as external influences, which can be opportunities or threats are analysed in order to derive promising future strategies. Applying SWOT the most important items according to the topics

¹ In Austria forest possession with more than 200 ha is called forest enterprise, while smaller ones are called small-scale forests.

Table 2 Blank SWOT matrix with questions

Internal strengths	Internal weaknesses
What are FOC's advantages?	What could be done better?
What is done well?	What is actually done poorly?
What do others see as the advantages of an FOC?	What should not occur?
External opportunities	External threats
Which trends are affecting FOCs and their environment?	What do our competitors do?
Which opportunities can arise from trends?	What barriers are there?
	Are there changes in the context of work, product or service?
	Does a technology shift threaten our actual reached position?
	Are there financial problems?

strengths, weaknesses, opportunities and threats are specified for the object under investigation (a company or a supply chain) and then the items per topic are ranked. SWOT analyses are useful for scanning internal strengths and weaknesses of organisations as well as for illuminating the opportunities and risks of a dynamic environment. From the 1960s until the present, American business schools evolved the SWOT concept, which stresses the importance of a strategy to fit into the company's internal and external situation (see e.g., Andrews 1980).

Particularly in both the strategic planning and early decisions stages, the SWOT analysis is a commonly used tool (Bartol and Martin 1998) that is recognised to be well-established for these matters (Dyson 2004). It is an easy-to-use method that provides a transparent initial overview and identifies important problem areas. Furthermore, SWOT encourages learning about the situation and reflecting as to what can be done (Sorensen et al. 2004). In spite of the importance of exact knowledge of an enterprises' strengths and weaknesses as well as of the dynamic context, many enterprises only have vague information about these strategic valuable facts (Houben et al. 1999).

As disadvantage of SWOT can be mentioned that after analysing the external and internal situation of the company, the selection of promising strategies is not supported by quantitative methods. Strategy selection is "...mainly based on the qualitative analysis, capabilities and expertise of the persons participating in the planning process..." (Pesonen et al. 2001, p. 536). Several attempts have been made to expand SWOT with quantitative methods, weighing and rating the internal and external factors (see e.g., Kotler 1988; Wheelen and Hunger 1995). More recent studies connect SWOT with the analytic hierarchical process (AHP, Saaty 1980) to make factors commensurable and to support a more quantitative basis in the strategic planning process (Kurttila et al. 2000).

Applying SWOT

According to Lobriser and Abplanalp (1998) a SWOT analysis can be executed with the assistance of a matrix. Initially, there is a blank matrix with four sectors (strengths, weaknesses, opportunities, threats). Helpful questions to fill in each section are laid out in Table 2.

Filling in the sections to answer the questions can be done by brainstorming. As a following step, similar arguments should be summarised and ranked according to their importance, beginning with the most important. The following results of the SWOT analyses (Table 3) made for FOCs in Austria synthesize literature review as well as own research (Rauch 2002, 2003; Rauch and Gronalt 2005) and unpublished interviews with FOC employees. These interviews used questions asking explicitly for the strengths and weaknesses, but also for customer requirements. Customers here are both the mills who purchase logs from FOCs and forest owners as FOC members. Arguments listed, as well as ranking is subjective, but they reflect the interviews and literature. To support the following step: strategy formulation—each issue is coded, for example, S1 is shorthand for the highest-ranked, internal strength, which is face to face contact of the employees with forest owners.

Map out SWOT strategies

A general assumption of SWOT analyses is that a good strategy maximises strengths and opportunities and minimises threats and weaknesses (Kohlöffel 2000). The main SWOT table lists the internal and external success factors, shows the call for action and enables the formulation of strategies. For mapping out the strategies, the SWOT table has to be searched for logical SWOT combinations which answer the following questions (Lobriser and Abplanalp 1998): (1)

Table 3 Internal and external issues characterising Austrian FOCs

Internal strengths	Internal weaknesses
S1. Face-to-face contact of employees with forest owners (the trust of FOC members, local and regional acknowledged employees)	W1. The lack of services according to needs of small-scale forest owners
S2. Forestry competence and market knowledge of FOC's forester	W2. An intensive consulting effort by tiny volumes
S3. Better log prices through the bundling of small volumes from small-scale forests	W3. A resistance by part-time FOC employees against professionalism (full-time management of FOC), self-satisfaction with reached capacity and the concerns to reach a size where full-time management is needed
S4. Easy timber selling for FOC members	W4. The wood flow from FOCs is unpredictable (low adherence to delivery dates and volumes) and slow, internal information flow regarding already harvested or delivered volumes
S5. The simplification of timber procurement from small-scale forests for mills	W5. Low IT support in the administration of FOCs
S6. The use of up-to-date logging machinery and modern silvicultural techniques	W6. FOCs do not take into account neither structural changes in rural areas nor societal changes effecting small-scale forest owners and their attitudes
External opportunities	External threats
O1. The rapidly increasing number of small-scale forest owner without forest knowledge leads to a growing demand for consultancy in questions of forest management	T1. The industry wants cheap wood supplier and sees small-scale forest as such
O2. The industries' demand for wood surpasses the inland supply and demand for wood as fuel increases dramatically in 2006	T2. The new competition between strong FOCs and large forest enterprises
O3. The political support for regional initiatives, several subsidies available for innovative ways to supply wood	T3. The industry raises the imports of cheaper wood to compensate or avoid higher prices for FOC wood
O4. Wood as a sustainable resource has a good image	T4. The concentration process in forest-based industries decreases FOC's market power
O5. The possibility of new income in structurally-weak regions	T5. The increasing number of non-farm forest owners see forests primarily for recreation, nature-protection or pride, and not for the production of wood

Which strength fits with which opportunity (SO-combination)? (2) Which strength fits with which threat (ST-combination)? (3) Which weakness fits with which opportunity (WO-combination)? and (4) Which weakness fits with which threat (WT-combination)? The formulation of strategies starts with finding the combinations. Four different strategy types can be considered: (1) SO-strategies: internal strength(s) can be used to realise external opportunity(ies) (ideal case), (2) WO-strategies: reduce internal weakness(es) or develop missing strength(s) to realise external opportunities, (3) ST-strategies: internal strength(s) are used to minimise external threats and (4) WT-strategies: reduce the internal weakness(es) to avoid external threats (only defensive strategy, worst case scenario).

For each evolved strategy considered, SWOT combination(s) are listed in order to create a rational comprehensible result (e.g., S1/O3 means that strength number 1 and opportunity number 3 have been considered). The aim of the strategy formulation is to produce possible and attractive strategies. The results of

mapping out strategies in this way can be seen in Table 4.

The disadvantage of the SWOT matrix is that certain combinations are not considered as SW or others, but one strategy option derived from an SW-combination should be considered here, it is "professionalising through full-time management (S1/S2/W3)".

Evaluation of the strategic options

When selecting strategy options, offensive strategies using strengths and opportunities are preferred against defensive options, simply minimising risks and weaknesses (Lobriser and Ablanap 1998). So, SO-strategy options are discussed first, followed by WO and ST options and at least WT options are analyzed.

SO-strategies

SO-strategy "Marketing to attract new members" does not reflect the fact that for most types of small-scale

Table 4 SWOT strategy matrix for Austrian FOCs

Factors	Internal strengths	Internal weaknesses
External threats	ST-strategies The cooperation with forest enterprises to raise supply volume (S3/T2) A merger with regional neighbouring FOC(s) to gain market power (S5/T4)	WT-strategies Stop to deal with tiny volumes (T1/W2) Enhance delivery reliability (W4/T1/T2)
External opportunities	SO-strategies Marketing to attract new members (S1/S2/S3/S4/O1) Optimising the processes of the FOC-Industry Supply Chain (S4/S5/O2)	WO-strategies Use the potential for highly-mechanised logging (W5/W6/O2) Develop new business models for FOCs (W1/W2/W6/O1)

forest owners (compare e.g., Ruschko 2002; Hogl et al. 2005; Ziegenspeck et al. 2004) FOCs do not offer adequate solutions to their specific problems or needs. Only for those who are able to manage their forest without external help or consultancy, the advantage of selling timber jointly is seen as the reason to join a FOC. This strategy should not be implemented unless new, additional services covering the needs of a broader spectrum of owner types are offered.

“Optimising the processes of the supply chain” connects two strengths; the easy timber selling for FOC members and the simplification of timber procurement from small scale forests for mills, which are the core competences of FOC. Core competence is the combination of skills and knowledge, being most important in providing external customers with goods and services and that is difficult for competitors to duplicate (Prahalad and Hamel 1991). Optimised processes can unglue FOC’s manager from daily business, providing time to develop and to realise innovation. The lack of time has been revealed as a major barrier for developing visions and strategies in small companies (Sorensen et al. 2004). Therefore, this strategy is recommended for implementation.

WO-strategies

Two important weaknesses of the FOCs are the lack of forest inventory information (Rauch 2003) and the fact that FOC round wood supply volume out of small-scale forests is still at a rather small (Bundesamt und Forschungszentrum für Wald 2004). There is potential to harvest and sell a much larger volume due to a huge demand from Austrian’s forest-based industry and the tremendous harvesting surpluses, especially in small-scale forests. The strategy ‘Use the potential for highly-mechanised logging’ aims to find stands, which can be thinned cheaply using a harvester and forwarder and suggests that owners use this technique. For FOCs for-

ests technical, easy-to-use potential should be estimated and employment of this technology should be planned jointly. Thinning surpluses of about 36 M m³ (Bundesamt und Forschungszentrum für Wald 2004) and increasing demand of forest-based industries make this strategy option very attractive.

Structural changes in rural areas as well as societal development leading to new groups of forest owners call for the adaptation of FOC’s services to respond to the new needs of different owner types. Hogl et al. (2005) describes Austrian forest owner types and their attitudes. The main task is to provide services efficiently, even if tiny volumes have to be handled. Due to the linkage of the processes and organisational structures strategy to ‘Develop new business models for FOCs’ is connected with optimising processes, and is seen as a very important contribution to the further development of the FOC. The growing number of forest owners without forest skills and the resulting demand for consultation make this strategy option promising. Examples of newly developed business models are given in Rauch and Gronalt (2005).

ST-strategies

ST strategy “cooperation with the forest enterprises to raise the supply volume” strengthens FOC’s market power. Furthermore it increases professionalism through the forest enterprise’s employees working for the FOCs and it better connects FOCs with forest enterprises. Forest enterprises’ employees can take over specific measures, such as contracting entrepreneurs, but they will act as a part-time FOC employee, although maybe more professionally because they are working full-time in forestry. So this strategy will not exploit existing development potentials and it will not overcome the weaknesses of FOCs. But there are some advantageous cooperation issues, like joint use of modern harvest devices. Similarly, but perhaps a better

fitting option is the ‘Merger with regional neighbouring FOCs to gain market power’ strategy where further synergies could be revealed, sharing the experience of merging FOC employees. This strategy can be observed in Norway where several mergers decreased the number of FOCs (or more precisely, Forest owner associations) from 19 in 1997 to 8 in 2001, and where even more mergers are expected to take place in the near future (Stordal 2004). This strategy meets requirements arising from parallel concentration processes in forest-based industries.

WT-strategies

The defensive strategy ‘Stop dealing with tiny volumes’ could be chosen because of employees’ lack of time and because tiny volumes lead to extraordinary, high efforts. But this would mean surrendering a service that stores a huge development potential in terms of the total volume. On the other hand, handling these tiny volumes coming from fragmented small-scale forests are considered to be a core competence of the FOCs. Nevertheless, some organisations, like Coillte (The Irish forestry board) do not offer the farm partnership scheme to forest owners with less than 20 ha (Ni Dhubhain and Kavanagh 2003). Also, in the US, some agencies restrict their harvesting-cost share programs to forest holdings of 8 ha and more as is reported by Baumgartner et al. (2003). It is a challenging task to manage tiny volumes efficiently and it should not be restricted from further consideration because altogether it represents a huge unexploited potential.

The timber supply from small-scale forests is hard to steer in terms of managing exact delivery profiles. Industry sees small-scale forest as a bad, but cheap round wood supplier (Maier 1995). The strategy option ‘Enhance delivery reliability’ is an attempt to eliminate the above-mentioned weakness, but many FOC members working in the forest are full-time, or at least part-time, farmers who subordinate logging to agricultural needs that are weather-dependent.

SW-strategy

The lack of time of FOC employees working part-time or even on a voluntary basis is a main reason for FOC’s stagnation on a rather low-level. FOC employees are self-sufficient with actual status of organisation and they are not willing to expand FOC’s jobs to the point where full-time management is necessary. The growth of the FOC and increasing professionalism can be reached with full-time management, which is a high-potential strategy option as could be shown with the

example of FOC Kempten (Table 1). Valorising FOC’s management from a secondary business of a state forester to a half-time, and finally, even to a full-time job opened the way for developing more and more sophisticated services.

Conclusions

Applying SWOT analyses provides a good overview and makes it easy to pinpoint important problem areas. Reflecting on the FOC’s situation using SWOT, including internal and external success factors provides a solid basis for strategic thinking. One way to combine proven success factors is through the SWOT strategy formulation technique, there e.g., internal strengths or measures to eliminate weaknesses are combined with promising opportunities. The major advantage is that the formulation of strategies is directly connected to the SWOT analysis, providing a rational reproducible result.

In this case example the following strategy options have been recognised as the most promising: (1) To optimise the processes of the supply chain from the FOC to industry. This strategy links the easy timber selling for FOC members and the simplification of timber procurement for mills, two core competences of an FOC. (2) The ‘use potential for high mechanised logging’ strategy aims to find stands, which can be thinned cheaply using a harvester and a forwarder and to offer owners this harvesting technique. Thinning surpluses of about 36 M m³ and increasing per capita consumption of wood make this strategy option very attractive. (3) The strategy to ‘develop new business models for FOC’s is seen as a very important contribution for further development of FOCs. A growing number of forest owners without forest skills and the resulting demand for consultation make this strategy option promising.

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